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10/669,715

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Heume Il Baek

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MORGAN LEWIS & BOCKIUS LLP
1111 PENNSYLVANIA AVENUE NW
WASHINGTON, DC 20004

EXAMINER

BECK, ALEXANDER S

ART UNIT

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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/669,715 | Applicant(s) BAEK, HEUME IL | |
| | Examiner Alexander S. Beck | Art Unit 2629 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 January 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-12 and 14-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-12 and 14-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 25, 2010 ("RCE"), has been entered. Claims 1-5, 7-12 and 14-16 are currently pending and an Office action on the merits follows.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5, 7-12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admission of prior art ("AAPA") in view of U.S. Patent No. 5,936,608 to Springer ("Springer"), U.S. Patent No. 6,778,160 to Kubota et al. ("Kubota"), U.S. Patent No. 6,697,250 to Kuo ("Kuo") and U.S. Patent No. 6,222,512 to Tajima et al. ("Tajima").

As to claims 1, 7 and 9, AAPA discloses a liquid crystal display (AAPA, FIGS. 1-2), comprising:

- a liquid crystal display panel (AAPA, 6; FIGS. 1-2) having a liquid crystal cell (AAPA, Clc; FIG. 1) at each intersection area of gate lines (AAPA, GLm; FIG. 1) and data lines (AAPA, DLn; FIG. 1);

- an interface part (AAPA, 2; FIG. 1) for receiving the data provided by a computer (AAPA, 12; FIG. 1) and outputting a first data for applying the first data to the display;

- a timing controller (AAPA, 4; FIG. 1) realigning the data;

- a data driver (AAPA, 8; FIG. 1) applying the data to the display area; and

- a gate driver (AAPA, 10; FIG. 1) supplying a scan pulse (AAPA, ¶¶ 3-10).

AAPA does not disclose expressly wherein: (1) the display is driven by a frame divided into first and second fields; (2) the display includes a display area having a specific area and a non-specific area; (3) a video processor outputting a second data for displaying in the specific area and a third data for displaying in the non-specific area during the second field, the second data being generated from converting the first data to have different brightness level from the first data; (4) a memory temporarily storing the second and third data; (5) a position designator designating the specific area of the liquid crystal display panel where the second

data is implemented; (6) a data driver applying the second data to the specific area and the third data to the non-specific area during the second field; (7) the second data is data having different brightness from the first data and having different brightness from the third data; (8) the third data is black data; and (9) wherein the liquid crystal display panel displays a video signal of the first data in the first field, and then display the second data at the specific area and the third data at the remaining area in the second field, as claimed.

Springer discloses a computer (Springer, 100; FIG. 2) for providing data and position data for a specific area of a display panel (Springer, 80; FIG. 2) (e.g., wherein position data is inherently suggested in the addressing of images to be displayed); a video processor (Springer, 150; FIG. 2) for generating processed data for the specific area from the position data and the data such that the brightness level of the processed data for the specific area is different/higher than the brightness level of the data; a memory (Springer, 155; FIG. 2) temporarily storing the processed data; and a position designator (Springer, 145; FIG. 2) designating the specific area of the liquid crystal display panel where the processed data is implemented (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

In order to establish obviousness under 35 U.S.C. 103, it must appear that state of relevant prior art was such that claimed invention would have been obvious to one of ordinary skill in the art. In judging the “ordinary level of skill” in the art, it is the level of skill of those who normally attack the problems of the art that counts, and those who do most of the problem solving in the art involved are graduate engineers; as such they are chargeable with certain general knowledge concerning the principles of engineering, outside the narrow field involved, and with the skills, ingenuity and competence of the average professional engineer. *Mueller Brass Co. v. Reading Industries, Inc.*, 176 U.S.P.Q. 361,369 (E.D.Pa., 1972).

At the time the invention was made it would have been obvious to a person of ordinary skill in the art to modify the teachings of AAPA such that the computer comprised the video processor, memory and position designator of Springer for generating processed data for a specific area from position data and image data such that the brightness level of the processed data for the specific area is different than the brightness level of the data, as taught/suggested by Springer, wherein the data is applied to the display panel through the timing controller and data drivers, as taught/suggested by AAPA. The suggestion/motivation for doing so would have been because increasing the brightness of selective visual objects on a display with respect to other visual objects will highlight which control or application area the computer system user is currently focused on, and therefore enhance both information management and user interaction (Springer, col. 2, ll. 44-61).

It should be noted that although Springer does not disclose expressly wherein the data of the non-specific area is comprised of black data, examiner respectfully takes Official Notice that it is old and well-known to use black data in graphics of a computer display for displaying an image using grayscale. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the embodiment of AAPA and Springer such that the non-specific area comprised black data. The suggestion/motivation for doing so would have been to construct a graphical image using a grayscale.

While the cited portion of Springer above is applicable to an electron beam flat panel display monitor (Springer, col. 5, ll. 49-52), Springer does not disclose expressly wherein it is applicable to a liquid crystal display as claimed. However, it would have been within the purview of one of ordinary skill in the art that the selective brightness control method above is not limited to the display technology disclosed in Springer, but may be applied to liquid crystal displays as well. For example, Kubota discloses a method of selectively varying the brightness of arbitrary and different pixels in a liquid crystal display by changing a grayscale

value associated with each pixel (Kubota, Fig. 7; see also col. 10, l. 58). Thus, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to further modify the teachings of AAPA and Springer such that the brightness adjustment of various pixels in a liquid crystal display was achieved through grayscale data modification, as taught/suggested by Kubota. The suggestion/motivation for doing so would have been to adjust the brightness of select pixels in a display when separate light sources are not provided for each pixel.

While the cited portion of Springer above discloses the claimed components (e.g., video processor 150, memory 155, position designator 145) in a computer (Springer, 100), Springer does not disclose expressly wherein these claimed components are comprised in a liquid crystal display as claimed. Kuo discloses a liquid crystal display computer wherein a computer and liquid crystal display are integrated together, and the computer therefore being comprised in the liquid crystal display (Kuo, Fig. 1; see also col. 3, ll. 17-25). Thus, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer and Kubota such that the liquid crystal display and computer were integrated together such that the computer was provided within the liquid crystal display, as taught/suggested by Kuo. As such, each and every device claimed above is provided within the liquid crystal display. The suggestion/motivation for doing so would have been to realize a more compact personal computing system with a display, as one of ordinary skill in the art would appreciate.

Springer further discloses wherein the memory (Springer, 155) stores data and processed data to display an image on the display panel (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34). However, neither AAPA, Springer, Kubota nor Kuo disclose expressly wherein a frame of image data stored in the memory includes at least two fields; wherein each of the two fields correspond to a different

brightness level; or wherein at least one of the two fields stores black data, except for a specific area having a different brightness level.

Tajima discloses a liquid crystal display device comprising a memory (Tajima, 71), wherein a frame of image data stored in the memory includes at least two fields; wherein each of the two fields correspond to a different brightness level, the data in one field being generated from converting data from a preceding field to have different brightness level from the preceding field (Tajima, col. 12, ll. 19-46).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer, Kubota and Kubota such that the frame memory stored first and second fields corresponding to a single frame of image data, as taught/suggested by Tajima. The suggestion/motivation for doing so would have been to achieve a display device that prevents prominent image defects, such as flicker, and affords a high-quality image display (Tajima, Abstract).

Thus, examiner respectfully submits that the prior art of record taken collectively would have taught to one having ordinary skill in the art each of the claimed limitations. For example, the claimed "first data" is any one of data in a first sub-field of a frame (as taught by Tajima), the claimed "second data" is any one of data for a specific area (as taught by Springer) in the second sub-field of a frame (as taught by Tajima), the claimed "third data" is any one of data (including black data) for a non-specific area (as taught by Springer) in the second sub-field of a frame (as taught by Tajima), the "second data" has a different brightness level than that of the "third data" (as taught by Springer), and the "second data" (i.e., second sub-field) has a different brightness level than that of the "first data" (i.e., first sub-field), the "second data" being generated from converting the "first data" to have different brightness level from the "first data" (as taught by Tajima).

Furthermore, examiner respectfully submits that the prior art cited taken collectively suggests wherein the liquid crystal display panel displays a video signal of the first data in the first field (*e.g.*, any one of data in a first sub-field of a frame, as taught by Tajima), and then display the second data at the specific area (*e.g.*, any one of data for a specific area, as taught by Springer, in the second sub-field of a frame, as taught by Tajima) and the third data at the remaining area in the second field (*e.g.*, any one of data including black data for a non-specific area, as taught by Springer, in the second sub-field of a frame, as taught by Tajima), as claimed.

As to claim 2, Springer further discloses wherein the position designator (Springer, 145) designates the specific area in accordance with a program in a computer system (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

As to claims 3 and 8, Springer further teaches/suggests wherein the memory (Springer, 155) temporarily stores position data for the specific area. This teaching is inherently suggested in the disclosure of Springer given that the modified display data corresponding to visual objects at an increased brightness are stored in the memory (Springer, col. 4, l. 29 – col. 5, l. 42; see also col. 6, ll. 15-34).

As to Claim 4, neither AAPA, Springer, Kubota, Kuo nor Tajima discloses expressly wherein the video processor is comprised of a multiplexor. However, the examiner takes Official Notice that the use of multiplexing circuitry in video processors is old and well known in the art. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to further modify the teachings of AAPA, Springer, Kubota, Kuo and Tajima such that the video processor comprised of a multiplexor. The suggestion/motivation for doing so would have been because incorporating a multiplexor into a video processor would significantly reduce the cost production, as a multiplexor enables multiple sources of data to be transmitted over a single channel (versus providing a dedicating channel for each source of data), as one of ordinary skill in the art would appreciate.

As to claim 5, all of the claim limitations have already been discussed and met by AAPA, Springer, Kubota, Kuo and Tajima as detailed in the above paragraphs with respect to claims 1, 7 and 9.

As to claims 10 and 14, AAPA as modified by Springer, Kubota, Kuo and Tajima teaches/suggests wherein the memory is connected between the video processor and a timing controller (AAPA, Fig. 1) (Springer, col. 4, l. 60 – col. 5, l. 8). For example, as noted in the above discussion with respect to claims 1 and 7, the interface part of AAPA comprising the video processor, memory and position designator of Springer connects with the timing controller (AAPA, 4) for sequentially displaying data on the panel (AAPA, 6).

As to claims 11, 12, 15 and 16, all of the claim limitations have already been discussed and met by AAPA, Springer, Kubota, Kuo and Tajima as detailed in the above paragraphs with respect to claims 1, 7 and 9.

Response to Arguments

5. Applicant's arguments filed January 25, 2010, have been fully considered but they are not persuasive. Applicant argues that the prior art of record fails to teach or suggest, "wherein the liquid crystal display panel displays a video signal of the first data in the first field, and then display the second data at the specific area and the third data at the remaining area in the second field" (RCE, pp. 8-10).

Examiner respectfully disagrees. For example, examiner respectfully submits that the prior art of record is modified in the same manner and for the same reasons set forth in the discussion of claims 1, 7 and 9 above. Furthermore, examiner respectfully submits that the prior art of record taken collectively would have taught to one having ordinary skill in the art each of the claimed limitations. For example, the claimed "first data" is any one of data in a first sub-field of a frame

(as taught by Tajima), the claimed "second data" is any one of data for a specific area (as taught by Springer) in the second sub-field of a frame (as taught by Tajima), the claimed "third data" is any one of data (including black data) for a non-specific area (as taught by Springer) in the second sub-field of a frame (as taught by Tajima), the "second data" has a different brightness level than that of the "third data" (as taught by Springer), and the "second data" (i.e., second sub-field) has a different brightness level than that of the "first data" (i.e., first sub-field), the "second data" being generated from converting the "first data" to have different brightness level from the "first data" (as taught by Tajima).

Moreover, as to the newly added limitation argued by applicant above, examiner respectfully submits that the prior art cited taken collectively suggests wherein the liquid crystal display panel displays a video signal of the first data in the first field (*e.g.*, any one of data in a first sub-field of a frame, as taught by Tajima), and then display the second data at the specific area (*e.g.*, any one of data for a specific area, as taught by Springer, in the second sub-field of a frame, as taught by Tajima) and the third data at the remaining area in the second field (*e.g.*, any one of data including black data for a non-specific area, as taught by Springer, in the second sub-field of a frame, as taught by Tajima), as claimed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander S. Beck whose telephone number is (571)272-7765. The examiner can normally be reached on M-F, 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alexander S. Beck/
Primary Examiner, Art Unit 2629

Dated: February 3, 2010